

Monthly Marine Biotoxin Report

February 2007

Technical Report No. 07-14

INTRODUCTION:

This report provides a summary of biotoxin activity for the month of February, 2007. Ranges of toxin concentrations are provided for the paralytic shellfish poisoning (PSP) toxins and for domoic acid (DA). Estimates are also provided for the distribution and relative abundance of *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid. Summary information is also provided for any quarantine or health advisory that was in effect during the reporting period.

Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All samples are assayed for PSP toxins; DA analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA); (iv) Please refer to the appropriate figure key for an explanation of the symbols used on the maps.

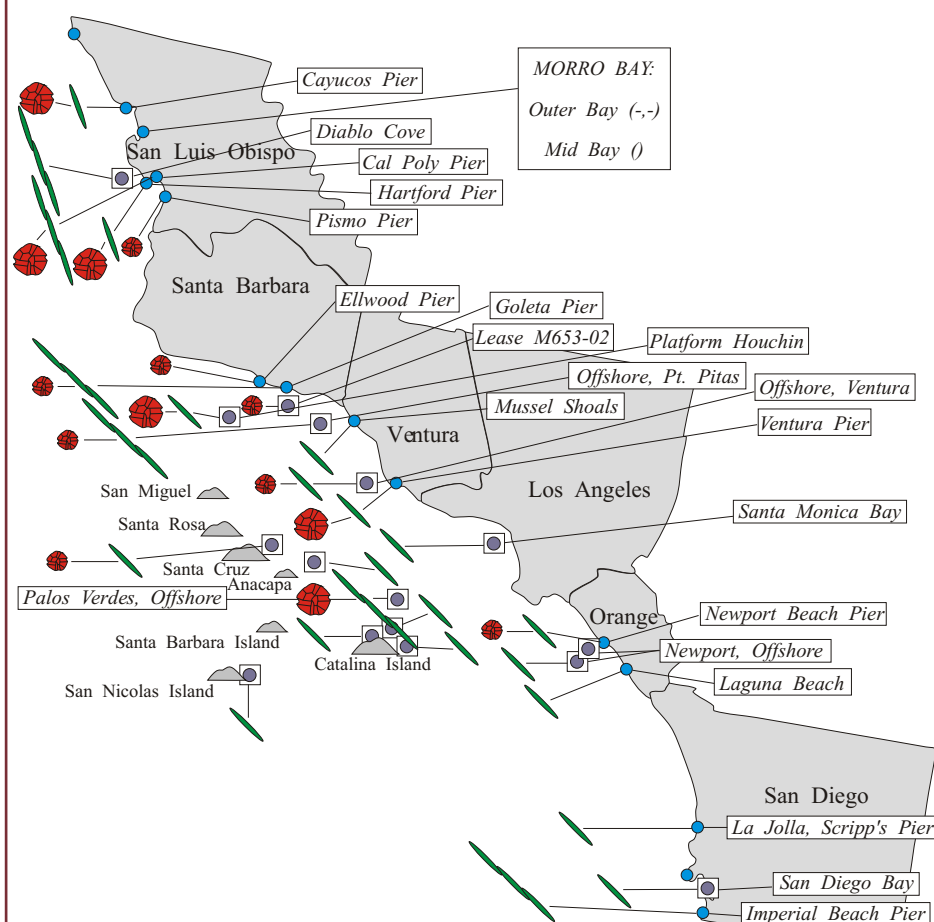
Southern California Summary:

Paralytic Shellfish Poisoning

Alexandrium was observed at sites between San Luis Obispo and Orange counties during February (Figure 1). The distribution of this

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Figure 1. Distribution of toxin-producing phytoplankton in Southern California during February, 2007.



Relative Abundance of Known Toxin Producers

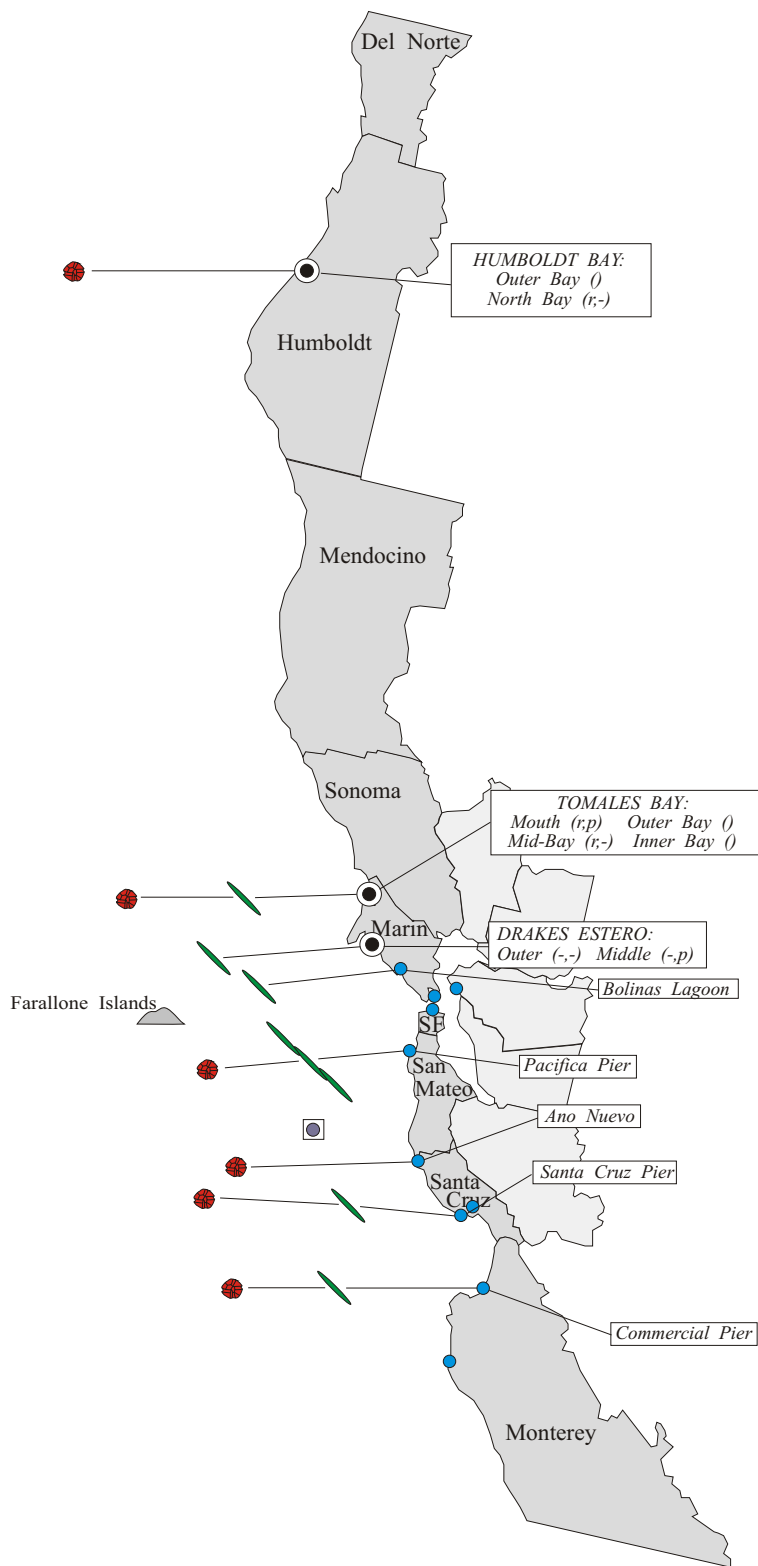
Alexandrium Species		Pseudo-nitzschia Species	
	Rare (less than 1%)		Present (less than 10%)
	Present (between 1% and 10%)		Common (between 10% and 50%)
	Common (between 10% and 50%)		Abundant (greater than 50%)
	Abundant (greater than 50%)		

MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:
(a,p) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 2. Distribution of toxin-producing phytoplankton in Northern California during February, 2007.



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dinoflagellate was similar to observations in January, although the relative abundance was reduced. *Alexandrium* was observed offshore near Santa Cruz Island and off of the Palos Verdes peninsula (Los Angeles County) as well. Overall the cell numbers were low in all areas. This marks the 12th consecutive month that *Alexandrium* has been observed along a significant portion of the Southern California coast.

Low concentrations of PSP toxins continued to be detected in mussels from several sites along the San Luis Obispo coast throughout the month. The high PSP toxin concentrations detected in mussels from Avila at the end of January continued through the first half of February (Figure 3). Farther south there was a rapid increase in these toxins by the second week of February. Within one week the toxin concentration in mussels from an offshore aquaculture lease exhibited an increase from nondetectable levels (February 6) to well above the alert level (133 ug/100g on February 14). Low levels of the PSP toxins were also detected in mussels from an offshore oil platform during the middle of the month and in a sample of lobster viscera collected near Anacapa Island on February 21.

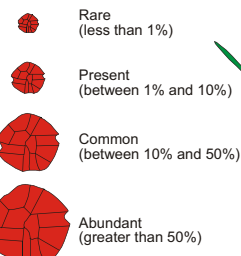
Domoic Acid

Pseudo-nitzschia continued to be observed

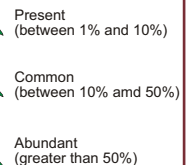
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Relative Abundance of Known Toxin Producers

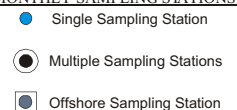
Alexandrium Species



Pseudo-nitzschia Species



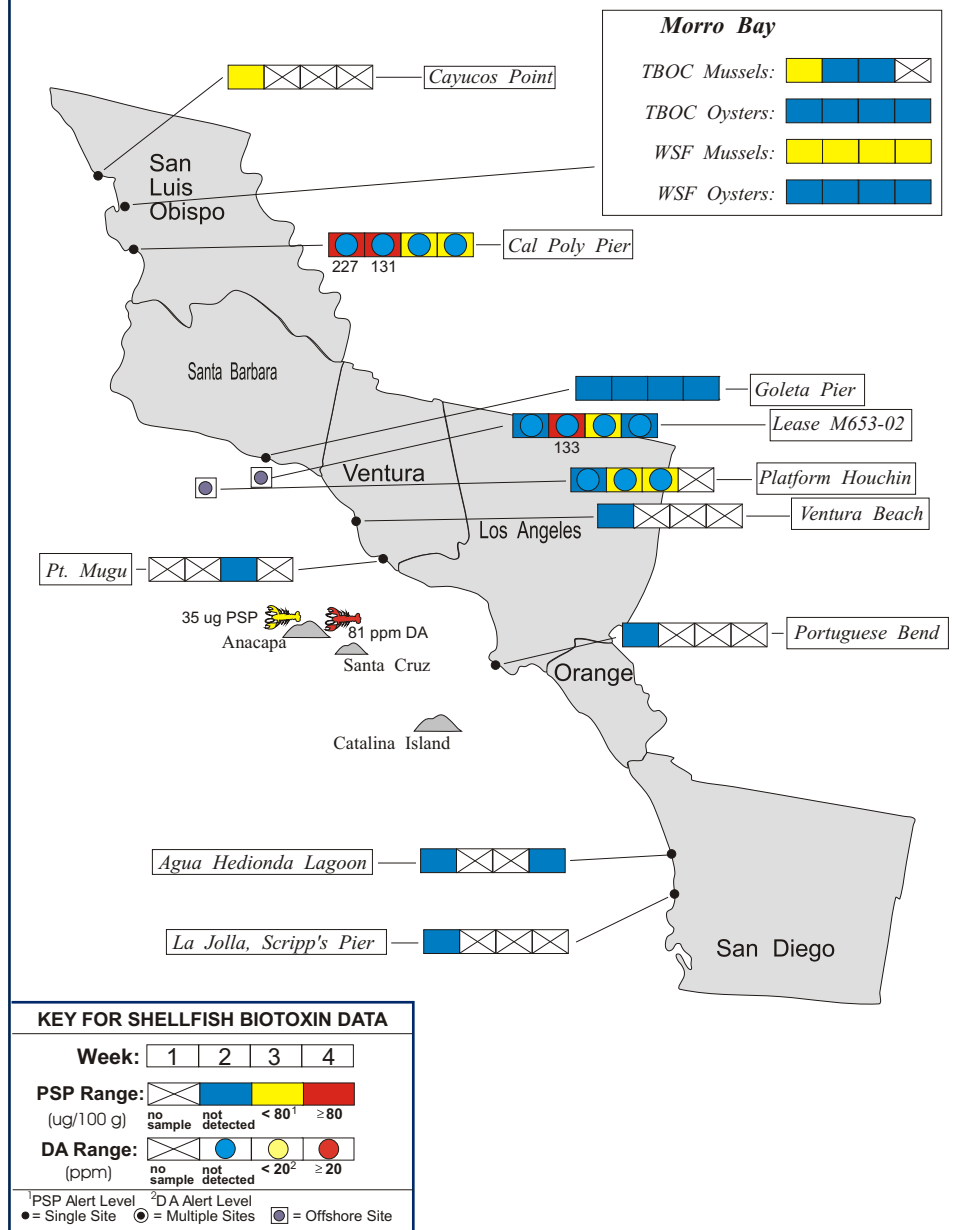
MONTHLY SAMPLING STATIONS:



For areas with multiple sampling stations, species abundance at each station is represented as follows:

(A,P) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 3. Distribution of shellfish biotoxins in Southern California during February, 2007.



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along the entire Southern California coast in February (Figure 1). The distribution was similar to observations in January, although there was a decline in the relative abundance at several sites. The highest relative abundances were observed offshore of Palos Verdes and increased during the last two weeks of the month. Domoic acid was not detected in any mussel samples analyzed in February.

Non-toxic Species

The Southern California coast was again dominated by detritus and variety of diatom species. The most common diatoms observed included *Chaetoceros*, *Skeletonema*, *Thalassiosira*, and a variety of centric species. Other common species that were more locally distributed included *Odontella* (Cayucos) and *Lauderia* (offshore of San Luis Obispo, Santa Barbara, Ventura, and Los Angeles). *Leptocylindrus* was also common at some sites between Los Angeles and San Diego. Dinoflagellates (*Ceratium*, *Akashiwo*, *Scrippsiella*) were common in some areas. *Cochlodinium* was common offshore of Santa Barbara.

Northern California Summary:

Paralytic Shellfish Poisoning

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The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Health Services, is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins and domoic acid.

The Phytoplankton Monitoring Program is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact the public. The phytoplankton monitoring and observation effort can provide an advanced warning of a potential toxic bloom, allowing us to focus sampling efforts in the affected area before California's valuable shellfish resources or the public health is threatened.

For More Information Please Call:
(510) 412-4635

For Recorded Biotoxin Information Call:
(800) 553-4133

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The distribution of *Alexandrium* in February was similar to observations in January (Figure 2). This dinoflagellate continued to be observed in low numbers at sites in Marin, Santa Cruz, and Monterey counties.

The low levels of PSP toxins detected in sentinel mussels from Drakes Estero at the end of January continued throughout February (Figure 4). Sentinel mussels from the main channel increased above the alert level during the first week (124 ug on February 6) before declining to low levels for the remainder of the month. Similarly, low levels of these toxins detected during the last week of January at the Santa Cruz Pier increased to 106 ug by February 7, then declined to low levels for the rest of the month.

Domoic Acid

The distribution of *Pseudo-nitzschia* was similar to observations in January, with a slight increase at Pacifica Pier. Cell numbers were low at all locations (Figure 2). Domoic acid was not detected in any shellfish samples collected in February.

Non-toxic Species

Chaetoceros, *Skeletonema*, *Thalassiosira*, and a variety of centric species were common in February. The dinoflagellates *Prorocentrum* and *Akashiwo* were common at sites inside Monterey Bay and at Pacifica.



QUARANTINES:

There were no quarantines in effect in February. The annual mussel quarantine normally goes into effect on May 1 of each year and applies only to sport-harvested

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Figure 4. Distribution of shellfish biotoxins in Northern California during February, 2007.

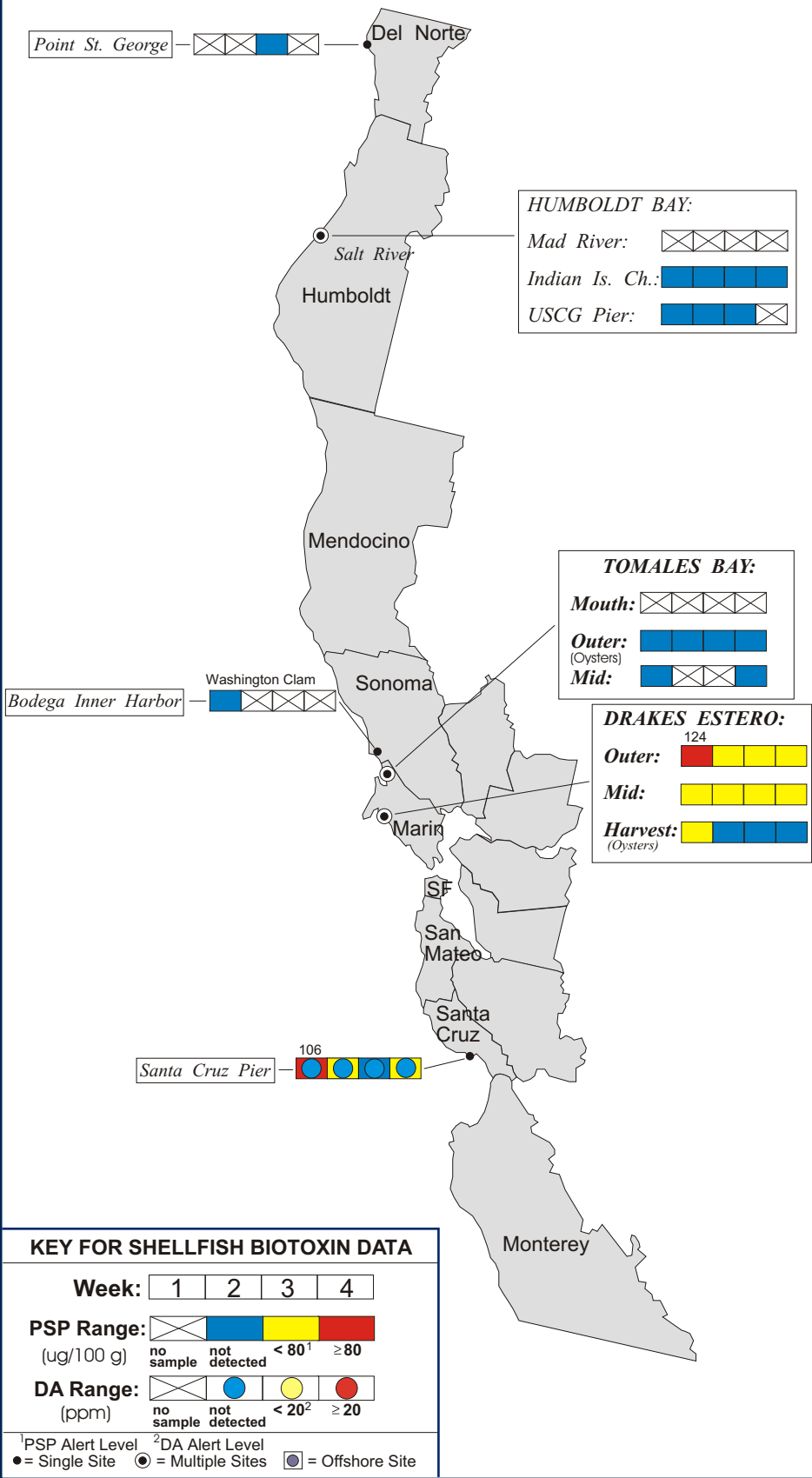


Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during February, 2007.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	7
Mendocino	None Submitted	
Sonoma	CDHS Volunteer (Bill Weinerth)	1
Marin	Cove Mussel Company	2
	Drakes Bay Oyster Company	20
	Hog Island Oyster Company	4
San Francisco	None Submitted	
San Mateo	None Submitted	
Santa Cruz	U.C. Santa Cruz	4
Monterey	None Submitted	
San Luis Obispo	Cal Poly	5
	Tomales Bay Oyster Company	7
	Williams Shellfish Farms	8
	CDHS Volunteer (Otto Schmidt)	1
Santa Barbara	CDHS Volunteer (Bill Weinerth)	1
	Santa Barbara Mariculture Company	7
	U.C. Santa Barbara	4
	Central Coast Shellfish Company	3
Ventura	CDHS Volunteer (Bill Weinerth)	1
	Naval Air Station, Pt. Mugu	1
Los Angeles	Los Angeles County Health Department	1
Orange	None Submitted	
San Diego	Carlsbad Aquafarms, Inc.	2
	Scripps Institute of Oceanography	1

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mussels along the entire California coastline, including all bays and estuaries. Routine biotoxin monitoring is maintained throughout this period. The annual quarantine does not affect the certified commercial shellfish growing areas in California. All certified shellfish growers are required to submit at least weekly samples of shellfish for toxin monitoring. Harvest restrictions or closures are implemented as needed to protect the public's health.

Consumers of Washington clams, also known as butter clams, are cautioned to eat only the white meat. Washington clams can concentrate the PSP toxins in the viscera and in the dark parts of the siphon and can remain toxic for a long period of time. Persons taking scallops or clams, with the exception of razor clams, are advised to remove and discard the dark parts (i.e., the digestive organs or viscera). Razor clams are an exception to this general guidance due to their ability to concentrate and retain domoic acid in the edible white meat.

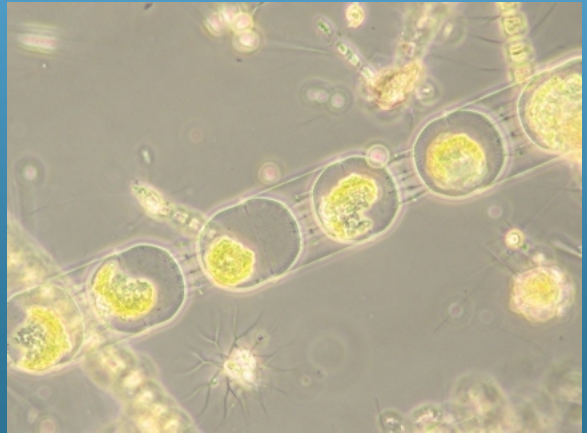
Consumers are also advised that cooking does not eliminate the toxins from the shellfish tissue. Sport harvesters are encouraged to contact the "Biotoxin Information Line" at 1-800-553-4133 for a current update on marine biotoxin activity prior to gathering and consuming shellfish.



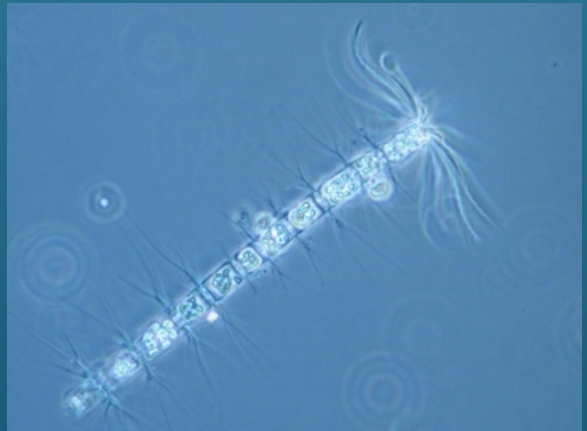
Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during February, 2007.

COUNTY	AGENCY	# SAMPLES
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	4
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Audubon California	3
	CDHS Volunteers (Brent Anderson, Cal	8
	Drakes Bay Oyster Company	9
San Francisco	CDHS Volunteer (Eugenia McNaughton)	1
San Mateo	San Mateo County Environmental Health	1
	The Marine Mammal Center (Stan Jensen)	3
	U.C. Santa Cruz	1
Santa Cruz	The Marine Mammal Center (Nancy	2
	U.C. Santa Cruz	4
Monterey	Monterey Abalone Company	2
	The Marine Mammal Center (Aubrey St. Marie)	1
	Marine Pollution Studies Laboratory	4
San Luis Obispo	CDHS Volunteer (Renee and Auburn Atkins)	1
	Cal Poly	4
	Monterey Bay National Marine Sanctuary	1
	Morro Bay National Estuary Program	2
	Tenera Environmental	1
	The Marine Mammal Center (Debbie Davis,	6
Santa Barbara	CDHS Volunteer (Sylvia Short)	1
	Channel Islands National Marine Sanctuary	1
	Santa Barbara Mariculture Company	2
	Central Coast Shellfish Company	4
	U.C. Santa Barbara	5
Ventura	CDHS Volunteer (Fred Burgess)	3
	NAS Pt. Mugu	1
Los Angeles	Catalina Island Marine Institute	1
	Los Angeles County Sanitation District	4
	City of Los Angeles Environmental Monitoring	2
	Guided Discoveries, Tole Mour	9
	Southern California Marine Institute	1
Orange	Ocean Institute	1
	Orange County Sanitation District	2
	CDHS Volunteer (Debbie Karimoto)	1
San Diego	Avian Research Associates	3
	CDHS Volunteer (Paul Sims, Claire Sims)	3
	Scripps Institute of Oceanography	4

PHYTOPLANKTON GALLERY



The diatom Stephanopyxis was present amongst the more common species that have typified the California coast



The diatom Bacteriastrium was present at several Southern California sampling locations.



A chain of the dinoflagellate Ceratium candelabrum, occasionally observed in samples collected offshore of Southern California.